

# NOTES ON SOME AUSTRALIAN ATHERINIDÆ.

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Plate I. and Text Figure 1.

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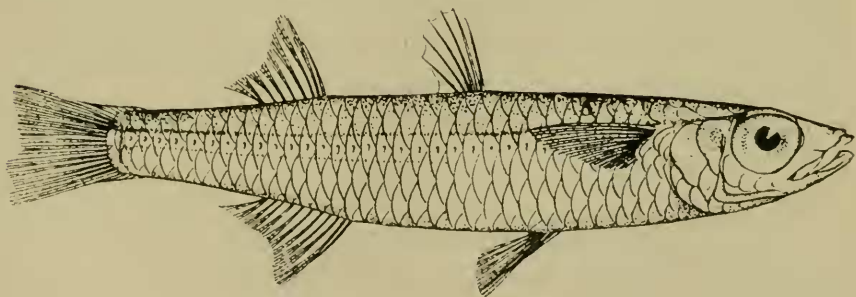
(Communicated by DR. T. HARVEY JOHNSTON).

*ATHERINA MUGILOIDES*, *nom. nov.*

(Text Figure 1.)

*Atherinichthys punctatus*, De Vis, Proc. Linn. Soc. N. S. Wales, IX., 1885, p. 869 (not *Atherina punctata*, Bennett, 1832).

D.V-VI, 1/7-8 ; A.I/9-10 ; V.I/5 ; P. 12-13 ; C. 17 ; L. Lat. 33-34 ; L. Tr. 6.



TEXT FIGURE 1.

Body stout, depth at ventrals  $5\frac{1}{4}$ - $5\frac{3}{4}$  in length from snout to hypural ; head 4 in the same. Snout  $1\frac{1}{3}$ - $1\frac{1}{2}$  in the eye, which is  $2\frac{1}{2}$ - $2\frac{2}{3}$  in the head, and equal to or wider than the interorbital space. Maxillary not expanded posteriorly, reaching to below the margin or anterior fourth of the eye. Teeth minute, slender, acute, apparently arranged in two series in the upper jaw and one in the lower ; confined to the front and anterior parts of the sides of the jaws. Vomer, palatines and tongue toothless. Gill-rakers long and slender.

Scales much larger anteriorly than on the caudal peduncle, in 33-34 series between the base of the pectoral and the hypural. There are six between the median series before the second dorsal and the anal, 10-12 between the first dorsal and the head, and nine between the first spines of the two dorsal fins.

Origin of the first dorsal almost midway between the snout and the hypural, and a little behind the vertical of the vent which is between the middle or hinder third of the ventrals. Ventrals inserted about halfway between the pectoral and the dorsal or nearer the latter, and beneath the hinder third or fourth of the pectoral. Anal commencing well, and terminating slightly in advance of the second dorsal.

Colourless after long preservation in alcohol, with a broad silver lateral band. Cheeks and opercles silver. Upper parts with scattered minute black specks.

Described from six specimens, 28-35 mm. long from the snout to the hypural. Through the kindness of Dr. Hamlyn-Harris, Director of the Queensland Museum, I have been able to examine four from Cape York, including the type specimen, while two co-types are in the Australian Museum. The largest of these last is figured. They do not appear to differ generically from *Atherina*, but may be distinguished from most other Australian species by their large scales.

CRATEROCEPHALUS, *gen. nov.*

Freshwater atherines with small protractile mouths, the maxillary not reaching to the anterior margin of the eye. Body covered with large, cycloid, concentrically striated scales which extend forwards on to the upper part of the head: some large scales on the cheeks and opercular bones. First dorsal with about 5-8 spines, the second with 1 spine and 7-8 rays. Anal similar to dorsal. Microscopic teeth in each jaw; vomer, palatines and tongue toothless, the skin covering the roof of the mouth often bears minute papillae which closely resemble teeth. Gill-rakers short and few, about ten on lower limb of first arch.

Type.—*C. fluxiatilis*, sp. nov. *Atherinichthys maculatus*, Macleay, also belongs to this genus.

This genus differs from *Atherina* in having a smaller mouth and shorter and fewer gill-rakers. From *Tænio-membras* it is distinguished by the absence of vomerine teeth.

*Atherininichthys*, Bleeker, in which *C. maculatus* and other Australian atherines have been placed, is synonymous with *Chirostoma*, Swainson\* (type *Atherina humboldtiana*, Cuv. & Val.), and differs from all the Australian species in its small scales, long anal fin, and general form.

CRATEROCEPHALUS FLUVIATILIS, *sp. nov.*

(Plate I.; Figure 1.)

D.V-VII, I/7-8; A.I/8-9; V.I/5; P. 12-13; C. 17;  
L. Lat. 31-33.

Head  $3\frac{2}{3}$ - $3\frac{3}{4}$  in the length from the snout to the hypural. Depth  $1\frac{1}{3}$ - $1\frac{1}{2}$  in the head. Eye longer than the snout, about 3 in the head, and equal to or longer than the depth of the caudal peduncle. Interorbital width a little narrower than the eye in young specimens, wider in adults. Cheeks with a single series of large angular scales, and there are similar scales on all the opercular bones; upper surface of the head with larger irregular scales extending forwards to between the eyes, snout and preorbital naked. Anterior nostril near the margin of the preorbital on the angle formed between the top and side of the snout; posterior nostril near the eye. A line of pores extends from the snout to behind the eye, then bends downwards to a groove above the operculum; another line extends around the preoperculum and branches behind the angle of the mouth, one branch running along the preorbital and the other on to the lower jaw. Maxillary slightly expanded posteriorly not reaching the anterior margin of the eye. Six branchiostegals. Teeth minute, in a single series in each jaw.

Scales large, cycloid, concentrically striated, 31-33 in a row from behind the base of the pectoral to the hypural. Most of those on the dark lateral band are pierced by a simple pore. Between the median scale before the second dorsal and that in front of the anal there are 7-10 rows; in 20 specimens from the junction of the Namoi and Barwon

\*See Jordan & Evermann, Bull. U. S. Nat. Mus., No. 47, Pt. I., 1896, p. 792, and Pt. IV., 1900, pl. cxxiii., fig. 334.

Rivers there are 7 rows, and in six from Narrandera three have 10 rows, two have 8, and one has 7. The scales extend on to the base of the caudal.

Origin of first dorsal slightly in advance of the middle of the length to the hypural, and a little behind the vertical of the ventrals; second and third spines longest. Anterior rays of second dorsal longest, the fin originating a little farther back than the anal, to which it is similar in form. Ventrals usually reaching to the vent, sometimes shorter. Upper pectoral rays longest, reaching to the vertical of either the ventrals or the first dorsal.

Colour.—Whitish in formalin with a dark (silver) band extending from above the base of the pectoral to the hypural which may be continued, more or less indefinitely, on to the upper portion of the operculum and side of the snout. Upper portion of head and back with more or less numerous minute black specks which, when present, are arranged near the margins of the scales above the lateral band. Lower parts of the body with a few scattered specks, and a median row on the under surface of the caudal peduncle.

Described from six specimens, 35-61 mm. long, from North Yanko Creek, Narrandera, N. S. Wales, and twenty from a lagoon at the junction of the Namoi and Barwon Rivers, N. S. Wales. The specimen selected as the type is 61 mm. long, from the former locality. They were collected by Mr. David G. Stead, who presented them to the Australian Museum. Other specimens are in the Museum collection from the McIntyre River, on the boundary between N. S. Wales and Queensland.

This species is very probably identical with *Atherina interioris*, Zietz,\* from the overflow of Coward and Strangways Springs, Central Australia, which though named, has not been described. Through the kindness of Professor E. C. Stirling, Director of the South Australian Museum, I have been able to examine one of Mr. Zietz's original specimens, but its condition is too bad to enable me to say whether it is identical with those described above or not.

The following notes on the distribution and habits of *C. fluviatilis* have been supplied by Mr. Stead. "The

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\*Zietz, Trans. Roy. Soc. S. Austr., xxxiii., 1909, p. 264.



Freshwater Hardyhead," which, curiously enough, considering its abundance, has, apparently, hitherto escaped description, is one of the commonest fishes in the Western waters of New South Wales—I may go farther than that, and say throughout the whole of the Murray River Drainage Area. I have collected it from billabongs and lagoons on the Murray River and have seen it in the Mitta Mitta, and other Victorian feeders of the Murray. It has also been sent to me in a collection from the lower Murray in South Australia. I have taken it in the warrumbools and small waterholes of the country north of the Upper Barwon, not far from the Queensland border, and have taken or observed it in Lake Narran, in several places on the Barwon and the Darling (old Collymungool Station, Collarenebri, Calmundi Station, Walget, Barooma, Brewarrina, and Bourke), in Tarrion Creek and the Dry Bogan, in the Bogan proper (at Nyngan), the Macquarie, the Cudgegong (at Rawden and above at an altitude of about 2,500 feet), the Lachlan, the Murrumbidgee (at several places on the plains and also in the vicinity of Cooma at an altitude of about 2,500 feet), Yanko Creek, Edward's, or Kyalite River and the Wakool.

“I have found it equally abundant in such widely-separated places and at such varying altitudes as Mungabarina, near Albury, Rawden near Rylstone, and the Upper Barwon. It may be mentioned that in one haul of the net, at a small waterhole near the junction of the Namoi and the Barwon, I took several thousands of this species from  $\frac{3}{4}$ -3 inches in length, with a net only 30 feet long by 4 feet deep. In the flowing rivers and larger lagoons it is found principally in the shallows along the banks, and in the clearer waters is seen moving in small schools.

“Adults commonly attain a length of two or three inches, and exceptionally four inches. The spawning season is during the warmer months, and the egg, which is an adhesive demersal one, is relatively large. It subsists upon the small aquatic insects and crustaceans which occur in prodigious numbers in most of the waters of the Murray Drainage Area.”

CRATEROCEPHALUS MACULATUS, *Macleay*.

(Plate I.; Fig. 2.)

*Atherinichthys maculatus*, Macleay, Proc. Linn. Soc. N. S. Wales, VIII., 1883, p. 207, and IX., 1884, p. 40.

D.VI-VIII, I/6-8; A.I/8-9; V.I/5; P. 11-13; C. 17;  
L. Lat. 32-33.

Head  $3\frac{2}{3}$ - $4\frac{1}{4}$  in the length from the snout to the hypural. Depth of body  $1\frac{1}{4}$ - $1\frac{1}{2}$  in the head. Eye longer than the snout, larger than in *C. fluviatilis*,  $2\frac{1}{2}$ - $3\frac{1}{4}$  in the head, its length equal to or less than the depth of the caudal peduncle. Interorbital as wide as the eye in young specimens, half as wide again in adults. Head scales, nostrils, and pores as in *fluviatilis*. Teeth minute, in three or four rows in the upper jaw, and one or two below.

Scales and fins similar to *fluviatilis*, but the relative positions and sizes of the latter vary somewhat in both species; the ventrals appear to be usually larger in *C. maculatus*. In all my specimens there are seven transverse rows of scales between the median dorsal and anal series in front of the second dorsal and anal fins.

Colour.—Whitish in alcohol with a dark band from the hypural to the pectoral, which is usually also distinct on the head. Upper part of head and back more or less densely speckled with black, and in well-marked examples each scale on the sides bears a central dark spot.

This species was originally obtained in Lillesmere Lagoon on the lower Burdekin River, Queensland. I am unable to find the type specimens in the Macleay Museum, and as they are not in the Australian Museum they are probably lost. The Australian Museum collection includes two specimens from freshwater at Cairns, and two from Townsville, collected by Mr. W. Butcher; four from Eidsvold, Burnett River, collected by Dr. Thomas L. Bancroft; one from near Brisbane, collected by Mr. F. Phillips. Length, 34-74 mm.

*C. maculatus* is distinguished from *C. fluviatilis* chiefly by its different colour-marking and in having several rows of teeth in the jaws instead of only one. The eye is also larger.

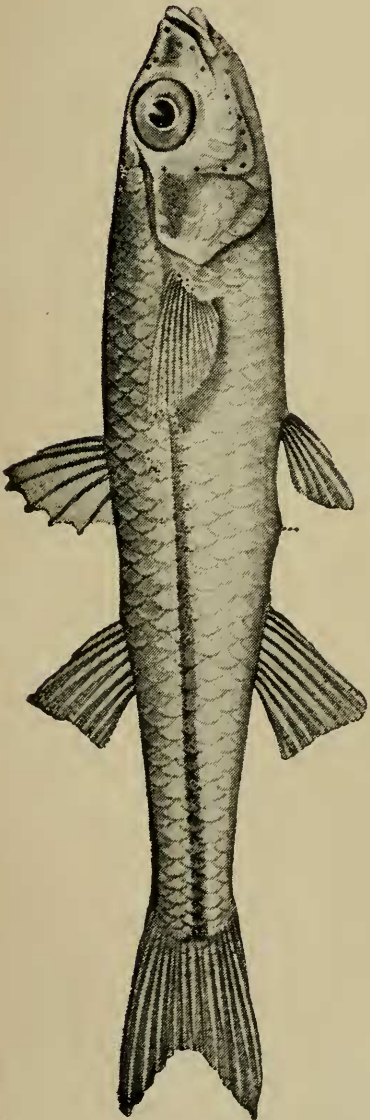
Explanation of Plate I.

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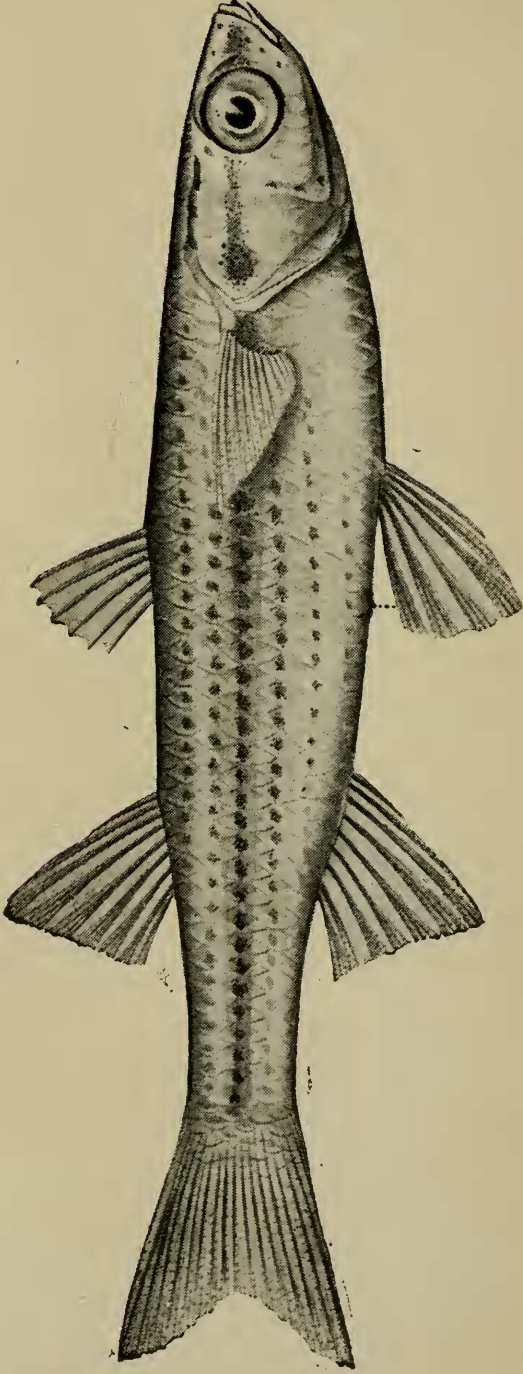
Figure 1. *Craterocephalus fluviatilis*, *sp. nov.* Type, twice natural size.

Figure 2. *Craterocephalus maculatus*, Macleay. Twice natural size.

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